

# Keshuai Xu

77 Elm St, Apt Ct 2  
Worcester, MA 01609

PORTFOLIO  
<https://xks.im>

508 233 3230  
[i@xks.im](mailto:i@xks.im)

## Areas of Interest

Human-machine interface, Biomechatronics, Medical robots, Autonomous vehicles, Legged robots, Smart materials, Additive manufacturing

## Education

Dec 2017 **Robotics Engineering**, Bachelor of Science  
WORCESTER POLYTECHNIC INSTITUTE (WPI)  
GPA 3.87  
Worcester, MA

## Research Experience

Sept 2017–  
present **Undergraduate Researcher** WPI AUTOMATION AND INTERVENTIONAL MEDICINE LAB  
Improved the motion control system of a da Vinci surgical robot for higher force sensing and feedback performance.  
Worcester, MA

Sept 2016 –  
Apr 2017 **Major Qualifying Project (Senior Thesis)** WPI  
Developed the world's first fly-by-wire single-engine aircraft. Worked on the Autonomous Cargo Aircraft Project as the avionics engineer, the PCB specialist, and the machinist. The goal of the multi-year project is to create a retrofitting kit to convert cheap single-engine planes into autonomous cargo drones.  
Worcester, MA

Jul–Aug 2016 **Engineering Consultant** WYSS INSTITUTE  
Designed and fabricated an internet-connected mouse activity monitoring system for mouse racks.  
Boston, MA

Jun–Aug 2016 **Undergraduate Researcher** WPI WIRELESS INNOVATION LAB  
Designed and fabricated PCB for the controls and communications of the autonomous golf cart project.  
Worcester, MA

Jan 2015–  
Dec 2016 **Undergraduate Researcher** WPI METAL PROCESSING INSTITUTE  
Experimented 3D printing with semi-solid metal.  
Worcester, MA

May–Aug 2015 **Research Assistant** STATE KEY LABORATORY OF INDUSTRIAL CONTROL AND TECHNOLOGY AT ZHEJIANG UNIVERSITY  
Designed and fabricated motion control circuit boards for a robotic leg.  
Hangzhou, China

## Teaching Experience

- Sept 2016–  
present **Lab Monitor** WPI WASHBURN SHOPS  
Maintained safety and OSHA compliance in a CNC machine shop. Held CNC machining, welding, and laser cutting training sessions.  
Worcester, MA
- Nov 2015–  
present **Lab Manager** WPI COLLABLAB  
Oversaw safety in a student-run makerspace. Helped members design and fabricate electronic and mechanical projects. Held workshops in CAM, CNC machining, soldering, and PCB designing.  
Worcester, MA
- Sept 2015–  
present **Senior Assistant** WPI ROBOTICS ENGINEERING DEPARTMENT  
Helped students in undergraduate robotics courses in the lab (sensing, actuation, manipulation, and navigation). Held exam review sessions. Diagnosed and repaired lab equipment.  
Worcester, MA
- Jun–Aug 2016 **Course Development Staff** WPI UNDERGRADUATE ROBOTICS LAB  
Developed lab documentation and equipment for undergraduate robotics courses at WPI.  
Worcester, MA

## Honors and Awards

- 2017 Recipient, **WPI Provost's MQP Award**  
2017 First Place, **Brown Robotics Olympiad**  
2016–present Member, **Rho Beta Epsilon Robotics Engineering Honor Society**  
2016 Recipient, **WPI Kalenian Award**  
2016 Third Place, **Brown Robotics Olympiad**  
2014 Recipient, **WPI Presidential Scholarship**

## Technical Skills

- Math Kinematics, Dynamics, Optimal control, State estimation, Navigation  
Programming Python, NumPy and friends, ROS, Embedded C, MATLAB, Julia, Java  
Electronics PCB designing with Altium Designer  
Mechanical CAD and CAM with Autodesk Fusion 360  
Fabrication CNC milling and turning, welding, soldering  
Miscellaneous Linux, Git, LaTeX, Vim, Biology wet lab techniques